



ORTHOS LIDAR REMOTE SENSING ELEVATION MODELS CONTOURS INFRARED DATA CONVERSION ANALOG & DIGITAL MAPPING 3D MODELS GROUND BASED LASER MAPPING TRAINING



Total Geospatial Solutions

APFO NAIP Meeting

November 27th, 2007

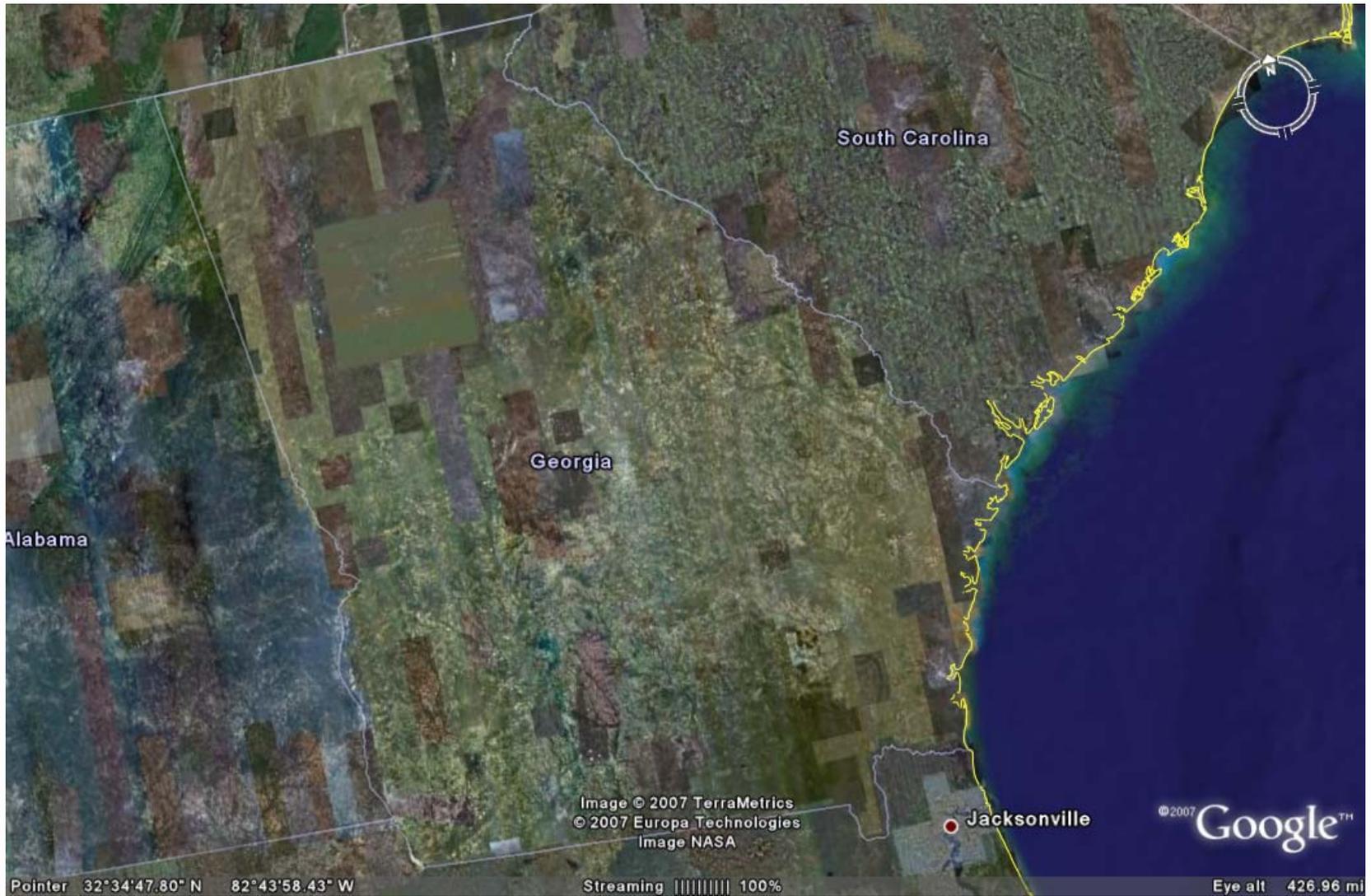
Presented by: Luiz Cortes

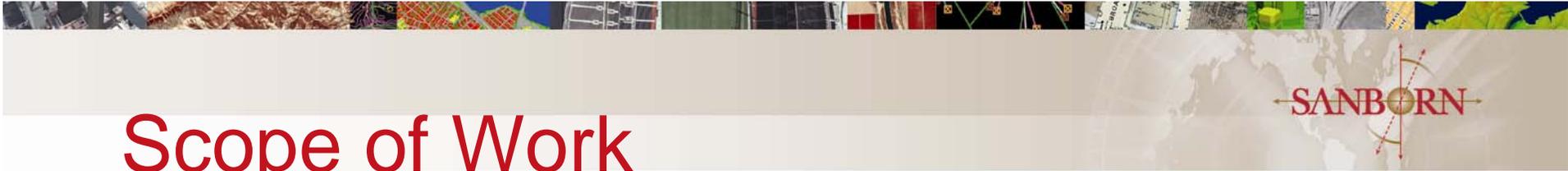
Production Manager

Sanborn Imagery Service East

Charlotte – NC

2007 Georgia -3921 DOQQ's



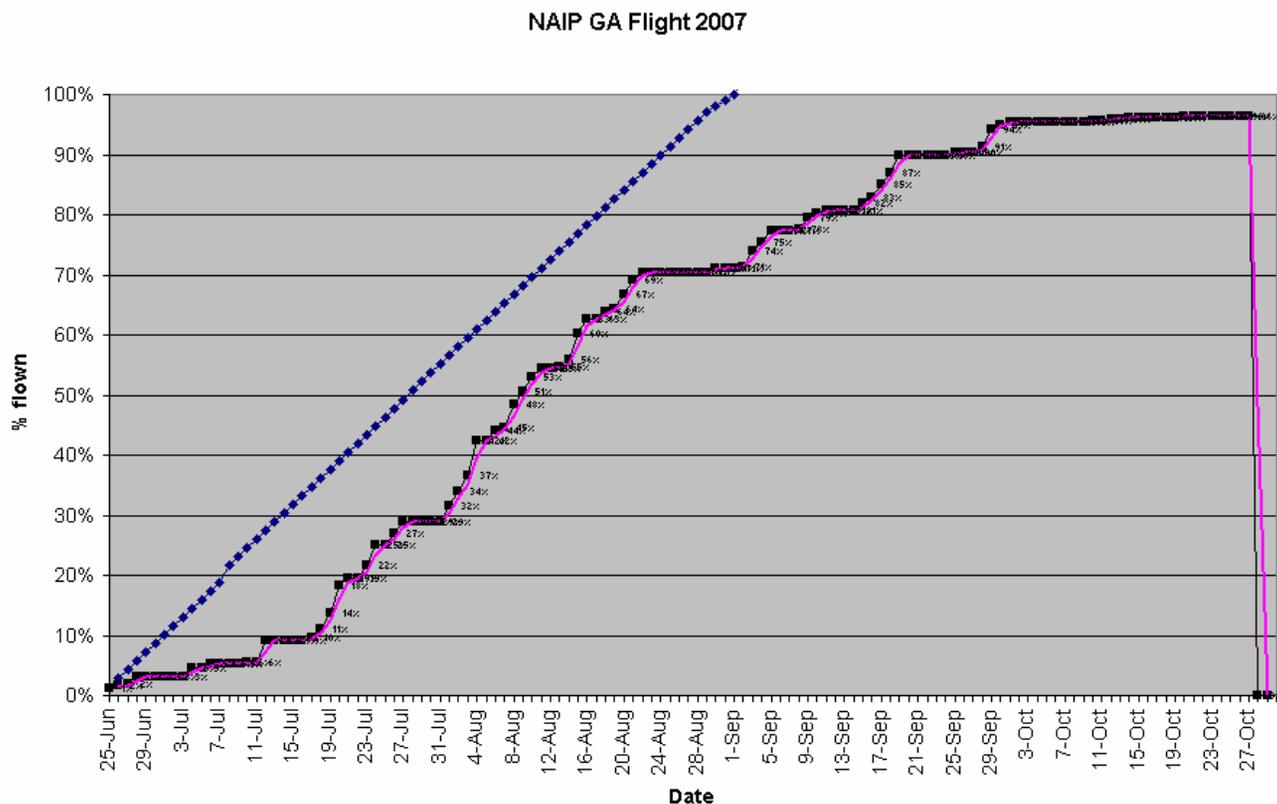


Scope of Work

- State of Georgia (entire state)
 - Requirements
 - 1-meter resolution
 - 4-band (acquisition only)
 - Acquisition Schedule: June 25th – August 31st
 - Final Delivery Schedule for CCM: October 1st
 - Final Delivery Schedule for DOQQ: October 15th
 - Acquisition via Z/I DMC sensor type
 - Three aircraft and sensors were used
 - Sanborn Imagery Services East (Charlotte)
 - Sanborn Imagery Services Central (St. Louis)
 - 1 Sub-Contract
 - Aerial Triangulation and Ortho Production
 - Completed by Imagery Services East (Charlotte)

Review of the 2007 NAIP Performance (Acquisition)

- Extension provided through December 15th
- 99% complete, 1% re-flights



Georgia Performance

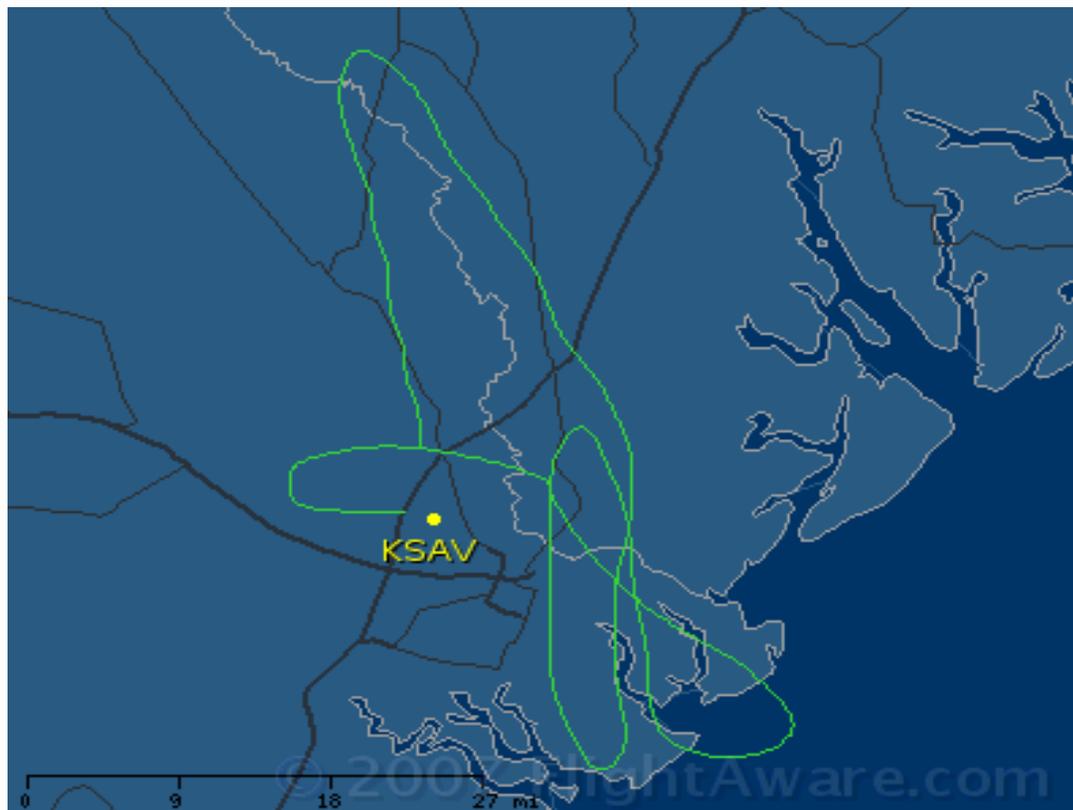
- Weather was the number 1 factor
- Planned 15,770 images to be flown
 - Actually have flown 20,000+
- Causes
 - Haze
 - Clouds/Cloud Shadow
- June 25th start- First 30 days bad weather conditions
 - 3 planes sat for 1 month, collected 10%
 - Fires also created haze causing more re-flights
- August 20th appeared to be 2 weeks late on collection
 - 70% complete
- August 20th thru October 3
 - Only 20% completed (90% complete)–weather hit again and continues
- Previous flying in 2005
 - Period of performance started May 23rd –Better weather?
 - GA did not want early start in 2007, due to drought conditions

Georgia Performance

- During 62 days - original period of acquisition - 37 days with favorable conditions - 57% of available time.
- 90 days extension provided 28 days of flying conditionsr – 31%
- Tracking weather on all available sites
 - <http://adds.aviationweather.noaa.gov/satellite>
 - http://www.leonardsworlds.com/traffic/traffic_camera_directory.htm
 - <http://www.weatherunderground.com>
 - <http://www.usairnet.com/cgi-bin/launch/code.cgi>
 - <http://aviationweather.gov/products/fa>

Recommendations / Lessons Learned

- Tracking the aircraft flight path significantly helped coordination/monitoring



Recommendations / Lessons Learned

Tracking performance with Google helped provide status to the team





Recommendations / Lessons Learned

- Collection period for South East
 - Longer period -90 days
 - Earlier start –Late Spring will help schedule adherence
 - September/October weather is restrictive based on 2005 and 2007 performance
 - Plan for significant re-flights due to clouds/haze



Recommendations / Lessons Learned

- COTS Software
 - Switched in 2007 from customized to COTS software
 - COTS products require significant vendor support
 - Overall output quality with work around has been excellent.
 - Automated doqq naming definition.
- 2007 Radiometric Requirements
 - APFO's standards has helped definition of accepted image quality
 - Initial rectified image is color-balanced and adjusted to meet specification
 - Developed custom radiometric QC routines to check adherence to standards
 - **Overall clipping** – cumulative percentage greater than 98 (ideal 99)
 - **Contrast** – greater than 120, (ideal 150)
 - **Histogram Peak** – Level at the peak to be between 108 and 148
 - **Color Balance** – RGB triplet within 10 of each other
 - Failed images loaded in Photoshop and adjusted.

Georgia - Performance

- Although behind schedule, image Quality meet specifications.



Clay County Georgia -25 DOQQ's

Georgia Performance

- Clay County - full resolution



Forecast for 2008 NAIP

- Modified Specifications
 - JPEG 2000
 - Sanborn is currently using this compression method for other programs
 - Sanborn provided JPEG 2000 samples during the 2006 contract year
 - No increase cost or difficulties
 - 4-band
 - Sanborn production process allow for simultaneous rectification and seam line generation
 - Sanborn provided 4-band data samples to the USDA during the 2006 contract year
 - Minor increase cost primary due to IT infrastructure requirements

Forecast for 2008 NAIP

- Modified Specifications
 - Seamline Shapefiles
 - A vector-line is saved during normal production
 - To provide in current state it will not cost additional monies
 - Line shapefile.
 - For topology and attribute definition minor cost may be required for editing
 - Absolute Control
 - Ground control instead of grayscale DOQ relative accuracy.
 - Sanborn completes this type of procedure for virtually all other contract
 - No increase of cost if control and identification is provided.
 - Increase cost to collect control
 - Cost will vary with requirement of point distribution:
 - Existing data processed with AGPS/IMU in combination with grayscale DOQQ can be used to verify accuracy of Airborne control for NAIP requirements.
 - Still requires DEM accuracy consideration.